

**FISHING ROD WITH SIGNAL DEVICES ACTIVATED BY  
FISH-BITE FLEXING OF THE FISHING ROD**

CROSS REFERENCE TO RELATED APPLICATIONS

This is a continuation-in-part of U.S. Application No.  
5 10/171,781 entitled "Fishing Rod with a Light Activated by  
Flexing of the Fishing Rod" and filed June 17, 2002.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to the general art of  
10 fishing, and to the particular field of fishing rods.

2. Discussion of the Related Art

Fishing is one of the most popular sports and pastimes  
in the United States, as well as in other countries. As  
such, the fishing art includes a multitude of devices and  
15 systems that are intended to make fishing more enjoyable,  
and more efficient. However, due to the popularity of the  
activity, there is always room for further improvements.

Fishing is often most efficient when conducted in low  
light conditions, such as at dawn or at dusk. Often, fishing  
20 occurs at night when there may be no light available to the  
fisherman other than moonlight. Furthermore, some fisherman  
may be visually impaired making it difficult if not

impossible to see the tip of the rod even during high visibility conditions, and which may make it nearly impossible to see the tip of the rod with sufficient clarity to determine when a fish has taken the hook during low  
5 visibility conditions. In addition, many individuals who are unable to do so with available fishing gear because of various physical impairments.

As is well known, there is a most fortuitous time to move a rod in order to secure a hook in a fish. If the rod  
10 is moved too early or too late, the hook may not be properly set or the fish may actually be able to swim away. Many fisherman can tell by the feel of the rod when the proper time to set the hook occurs. However, due to environmental conditions, it may not always be possible to set a hook.  
15 according to feel.

Therefore, there is a need for a fishing rod that provides a signal to a fisherman when a fishing rod should be moved to set a hook in a fish.

The fishing art contains many systems and devices for  
20 signaling a fisherman when a fish has taken the hook. However, the devices and systems known to the inventor are difficult to fit into a fishing rod and may require factory work for proper operation. This makes it difficult or expensive for a fisherman to adapt a fishing rod he or she

already owns to have a fish-bite signalling capability. In fact, it may require that a fisherman purchase an entire rod just for night fishing.

Therefore, there is a need for a signal system that can  
5 be used with a fishing rod and which is simple to install on the fishing rod.

#### PRINCIPAL OBJECTS OF THE INVENTION

The principal objects and advantages of the present invention include: providing a fishing rod having at least  
10 one signal device that indicates when a fish bite is occurring; providing such a fishing rod that emits a visible signal when a fish bite is occurring; providing such a fishing rod that emits a audible signal when a fish bite is occurring; providing such a fishing rod that produces a  
15 vibrating signal when a fish bite is occurring; providing such a fishing rod that can be used at night; providing such a fishing rod that can be used by a visually-impaired individual; providing such a fishing rod that can be used by a hearing-impaired individual; providing a kit for  
20 converting an existing fishing device into such a fishing rod; and generally providing such a fishing rod that is reliable in performance, capable of long lasting life, and particularly well adapted for the proposed usages

thereof.

Other objects and advantages of this invention will become apparent from the following description taken in conjunction with the accompanying drawings wherein are set forth, by way of illustration and  
5 example, certain embodiments of this invention

#### SUMMARY OF THE INVENTION

These, and other, objects are achieved by a fishing rod that includes a battery compartment in the handle of the  
10 fishing rod and a signal section between the handle of the rod and the tip of the rod. A switch system electrically connects a battery in the battery compartment to one or more signal devices in the signal section and includes a control switch in the handle of the fishing rod as well as an  
15 activation switch in the signal section of the fishing rod. The activation switch includes an electrically conductive pin mounted on the fishing rod and a coil spring mounted to surround the electrically conductive pin. The coil spring is electrically connected to the one or more signal devices and  
20 the electrically conductive pin is electrically connected to the battery via the control switch.

When the control switch is in the "on" configuration, the one or more signal devices are connected to the battery

when the fishing rod is flexed by a fish in a manner that produces electrical contact between the coil spring and the electrically conductive pin. The one or more signal devices are disconnected from the battery when the coil spring is electrically spaced apart from the electrically conductive pin. The coil spring and the electrically conductive pin are sized and spaced relative to each other so the pin is electrically spaced apart from the coil spring when the fishing rod is in an unflexed condition and the coil spring and the electrically conductive pin are in electrical contact with each other when the fishing rod is in a flexed condition.

For purposes of this disclosure, a "flexed" condition of the fishing rod is a condition assumed by the fishing rod when a fish strikes the bait and/or hook in a manner sufficient to properly hook the fish and the fishing rod is in an "unflexed" condition when either no fish strike occurs or when a nibble occurs or when a fish hits the hook and/or bait with force that is insufficient to capture the fish.

The one or more signal devices may include a light-emitting element, a sound-emitting element and/or a vibratory element which allows the fishing rod to be used in low light, at night with no light, or by a physically-impaired individual. The signal devices in the fishing rod

will emit a signal to a fisherman that a fish has been properly hooked.

A fishing rod can be easily fitted or retrofit to include the signal system of the present invention.

5 BRIEF DESCRIPTION OF THE DRAWING FIGURES

Figure 1 is a side elevational view of a fishing rod embodying the present invention.

Figure 2 is a perspective view of a signal section of the fishing rod embodying the present invention.

10 Figure 3 is an enlarged perspective view of a handle section of the fishing rod embodying the present invention with portions cut away to reveal details thereof.

Figure 4 is a perspective view of an activation switch of the fishing rod embodying the present invention.

15 Figure 5 is a schematic representation of a circuit used to electrically connect the elements of the signaling system of the fishing rod embodying the present invention.

Figure 6 is a partially schematic, side elevational view of a kit retrofitting an existing fishing rod,  
20 according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Other objects, features and advantages of the invention

will become apparent from a consideration of the following detailed description and the accompanying drawings.

Referring to the Figures, it can be understood that the present invention is embodied in a fishing rod 10 which  
5 comprises a body unit 11 which includes a distal end 12 having a tip 14 and a handle end 16. The fishing rod 10 is formed of the usual materials and the handle end 16 is hollow and has a handle chamber 18 defined therein. Fishing rod 10 includes a body longitudinal axis 20 extending  
10 between the distal end 12 and the handle end 16 of the rod 10. Fishing rod 10 further includes a wall 22 extending between the distal end 12 and the handle end 16. Body unit 11 is flexible with respect to the body longitudinal axis 20 between a flexed condition, indicated in Figure 1 by dotted  
15 lines 11', and an unflexed condition shown in solid lines in Figure 1.

Body unit 11 further includes a signal section 26 located between the distal end 12 and the handle end 16. Signal section 26 includes a hollow bore 30 which extends in  
20 the direction of the body longitudinal axis 20, a chamber 32 in the hollow bore 30, a first end 34, and a second end 36 spaced from the first end 34 of the signal section 26 in the direction of the body longitudinal axis 20. A first wall 38 is located on the first end 34 of the signal section 26 and

a second wall 40 is located on the second end 36 of the signal section 26.

Rod unit 10 includes a reel section 42 located between the handle section 16 and the signal section 26. Body unit  
5 11 is hollow between the handle section 16 and the signal section 26.

Rod unit 10 further includes a power system 50 which includes a battery section 52 defined in the wall 22 of the body unit 11 and which includes an opening 54 through the  
10 wall 22 of the body unit 11 in the handle section 16 of the body unit 11 and a battery 56 releasably mounted on the wall 22 of the body unit 11 adjacent to the opening 54 of the battery section 52.

The rod unit 10 further includes one or more signal  
15 devices 60 as hereinafter described. For example, in applications of the present invention wherein the one or more signal devices 60 includes a light-emitting device 60<sub>L</sub>, the signal section 26 includes a translucent wall section 28 and the light-emitting element 60<sub>L</sub> is mounted on the second  
20 wall 40 of the signal section 26. Light-emitting element 60<sub>L</sub> can include any suitable light bulb. Similarly, in applications wherein the one or more signal devices 60 includes a buzzer, beeper or other sound-emitting device 60<sub>S</sub> and/or a vibratory element 60<sub>V</sub>, those elements may be



mounted near the signal section 26, as schematically indicated in Figure 4, and/or in the handle end 16, as desired.

Rod unit 10 further includes an activation system 62 which includes a control switch section 64 defined in the wall 22 of the body unit 11 and which includes an opening 66 through the wall 22 of the body unit 11 in the handle section 16 of the body unit 11. The control switch section 64 is spaced apart from the battery section 52 in the direction of the longitudinal axis 20 of the body unit 11. A control switch 68 is mounted on the wall 22 of the body unit 11 adjacent to the opening 66 of the control switch section 64. The control switch 68 is movable between an "on" configuration and an "off" configuration and has a switch lever 70 located outside the chamber 18 defined in the handle end 16 of the body unit 11.

A first electrical conductor 72 electrically connects the battery 56 to a common ground conductor 74, a second electrical conductor 78 electrically connects the battery 56 to the control switch 68, and a third electrical conductor 80 is electrically connected to the control switch 68 for a purpose that will be understood from the teaching of the following disclosure.

The activation system 62 further includes an activation

switch 86 located in the signal section 26 of the body 11. Activation switch 86 includes a mounting bore 88 defined in the first wall 38 of the signal section 26. The mounting bore 88 extends in the direction of the body longitudinal axis 20. A mounting tube 90 is located in the mounting bore 88 and includes a proximal end 92 in the mounting bore 88 and a distal end 94 located outside of the mounting bore 88. An electrically conductive pin 96 is fixedly mounted in the mounting tube 90 and includes a distal end 98 which is located outside of the mounting tube 90. The electrically conductive pin 96 has an outer diameter 100. The third electrical conductor 80 electrically connects the electrically conductive pin 96 to the control switch 68.

Activation system 62 further includes a coil spring 110 located in the signal section 26. Coil spring 110 includes a first end 112 fixedly mounted on the first wall 38 of the signal section 26 and a second end 114 spaced from the first end 112 of the coil spring 110 in the direction of the body longitudinal axis 20. Coil spring 110 further includes a spring bore 116 defined between the first end 112 of the coil spring 110 and the second end 114 of the coil spring 110. The coil spring 110 is formed of material that is electrically conductive. The coil spring 110 is mounted to surround the electrically conductive pin 96 with the

electrically conductive pin 96 located in the spring bore 116 and extending from adjacent to the first end 112 of the coil spring 110 toward the second end 114 of the coil spring 110.

5           The coil spring 110 has a diameter 120 measured at the spring bore 116. Diameter 120 of the coil spring 110 is greater than the outer diameter 100 of the electrically conductive pin 96. As can be understood from the teaching of this disclosure, the electrically conductive pin 96 will be  
10 spaced apart from the coil spring 110 when the body unit 11 is in an unflexed condition. The coil spring 110 is sized and located with respect to the electrically conductive pin 96 to be in electrical contact with the electrically conductive pin 96 when the body unit 11 is in a flexed  
15 condition.

          The rod unit 10 further includes a fourth electrical conductor 122 electrically connecting the one or more signal devices 60 to the coil spring 110 and a fifth electrical conductor 126 electrically connecting the one or more signal  
20 devices 60 to the common ground conductor 74.

          Operation of the rod unit 10 will be understood by those skilled in the art based on the teaching of the above description. When the rod unit 10 is in an unflexed condition, the electrically conductive pin 96 is spaced

apart from the electrically conductive coil spring 110 and the circuit shown in Figure 5 is open, even if the control switch 68 is in an "on" condition. However, if the control switch 68 is in an "on" condition and the fishing rod 10 is flexed (as indicated by dotted lines 11' in Figure 1) sufficiently to hook a fish, the electrically conductive coil spring 110 will make contact with the electrically conductive pin 96 thus completing the circuit shown in Figure 5 and electrically connecting the one or more signal devices 60 to the power source 50 to activate the one or more signal devices 60 and produce a corresponding visible, audible and/or vibratory signal. The visible, audible and/or vibratory signal will remain on as long as the control switch 68 is in the "on" condition and the rod 10 remains flexed sufficiently to bring the electrically conductive pin 96 and the electrically conductive coil 110 into electrical contact with each other. As soon as either the control switch 68 is moved into the "off" condition or the electrically conductive pin 96 is electrically spaced apart from the electrically conductive coil 110, the one or more signal devices 60 will be deactivated.

The present invention may be used as a kit 150 to retrofit an existing fishing rod 153. In such an embodiment 150, the various components as hereinbefore described, with

the exception of the electrically conductive pin 96' and the coil spring 110', are mounted in a first container 155 attached to a rear portion 157 of the existing rod 153 in a manner and location that is non-intrusive to the user. The  
5 electrically conductive pin 96' and the coil spring 110' are mounted forwardly in a second container 163 mounted on a flexing portion 165 of the rod 153 (shown schematically in Fig. 6) whereby the conductive pin 96' and coil spring 110' are in electrical contact when the flexing portion 165 of  
10 the rod 153 is in a flexed condition but are not in electrical contact when the flexing portion 165 of the rod 153 is in an unflexed condition. Electrical conductors 167 connect the conductive pin 96' and coil spring 110' to the components in the first container 155 as hereinbefore  
15 described. The first container 155 has a translucent or transparent portion 173 through which light is transmitted by a light-emitting element thereof when the activation system of the present invention is activated. It is to be understood that the kit 150 of the present invention may  
20 include one or more signal devices, including a light-emitting element, a sound-emitting element and/or a vibratory element, as hereinbefore described.

It is understood that while certain forms of the present invention have been illustrated and described

herein, it is not to be limited to the specific forms or arrangements of parts described and shown.